

Frailty

Frailty is a syndrome of decreased reserve across multiple physiologic systems that is associated with greater risk for hospitalizations, disability, institutionalization, and other adverse outcomes, including mortality. Patients with frailty, most of whom are older adults, may be more likely to experience adverse outcomes due to iatrogenic causes, such as higher-risk medications or procedures. Guidelines recommend frailty screening for both chronic disease management and in-hospital care, as identification of frailty allows for risk mitigation and alignment of care with patients' goals. In addition, some interventions may delay or reverse frailty, thus increasing physiologic reserve and improving day-to-day function. This article reviews frailty definitions, approaches to assessment in different care settings, and management.

CME/MOC activity available at [Annals.org](https://annals.org).

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doi:10.7326/ANNALS-25-04412

This article was published at [Annals.org](https://annals.org) on 10 February 2026.

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CME Objective: To review current evidence on identification, assessment, management, and practice improvement for frailty.

Disclaimer: Some of this material is the result of work supported with resources and the use of facilities at the Veterans Affairs Boston Healthcare Center and the New England Geriatric Research Education and Clinical Center. The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the U.S. Department of Veterans Affairs or the U.S. government.

Funding Source: American College of Physicians.

Disclosures: All relevant financial relationships have been mitigated. Disclosure forms are available with the article online.

With the assistance of additional physician writers, the editors of *Annals of Internal Medicine* develop In the Clinic using MKSAP and other resources of the American College of Physicians.

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Frailty in Adults

Identification and
Assessment

Management

Practice Improvement

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Although frailty is distinct from aging, it affects up to a quarter of community-dwelling adults aged 65 years or older. The prevalence of frailty continues to increase as the U.S. population ages, with all “Baby Boomers” reaching age 65 years by 2030 (1–3).

According to its technical definition, frailty denotes a syndrome of physiologic and functional dysregulation across multiple body systems that is reflected in compromised homeostasis and results in increased vulnerability to worse health outcomes in the setting of both day-to-day and acute stressors (3–6). Frailty is most common with aging, although it can occur at younger ages (30s to 50s), such as among survivors of childhood cancer and people living with HIV (7, 8).

Frailty is typically defined using 1 of 2 frameworks (9, 10): the physical frailty phenotype or cumulative deficit frailty

(described later). Measured with any validated tool, frailty shows a strong association with adverse outcomes (4, 11, 12), such as medical complications, emergency department visits and acute hospitalizations, loss of independence, falls and fractures, cardiovascular disease, dementia, disability, and death. Through these adverse outcomes, frailty imposes substantial personal burden as well as health care costs (13). Furthermore, frailty seems to mediate the relationship between the severity of an underlying disease state and its clinical manifestations; for example, the presence of frailty increases the likelihood of clinically apparent cognitive impairment in persons with amyloid plaque burden (14). Identifying frailty allows clinicians to focus on reducing risk for these adverse outcomes and to personalize the management of chronic conditions in the context of frailty.

Frailty in Adults

What is frailty?

Although there are dozens of tools to measure frailty (15), they tend to stem from the 2 leading theories of frailty: 1) the physical phenotype of frailty (9), a clinically recognizable state with 3 or more of 5 characteristics (slow walking speed, weakness [grip strength], unintentional weight loss [≥ 10 lb in the previous year], self-reported exhaustion, and low physical activity), and 2) cumulative deficit frailty (10, 16), which is derived from the Comprehensive Geriatric Assessment (CGA) and is calculated as a simple proportion of how many age-associated health-related deficits are present out of the total number measured. Typically, a minimum of 30 deficits are evaluated, although as many as 70 or more items can be assessed. Although specific cut points vary, most tools define the transition to frailty as occurring when about 20% to 30% of selected deficits are present (17, 18) (Table 1). Critical to this definition is the assessment of multiple health systems, such as cognition, function, morbidities,

and nutrition. Frailty can further be measured as mild, moderate, or severe with higher prevalence of deficits; for example, a person with presence of 50% or more deficits is considered to be severely frail as few can survive additional stressors. In addition, both the phenotype framework and the cumulative deficit framework consider a “pre-frail” state, which comprises the presence of 1 or 2 of 5 phenotype items or 10% to 20% of deficits. Persons with prefrailty are at high risk for progressing to frailty; however, prefrailty can be a highly reversible state.

Both theories of frailty seek to capture the dysregulation and instability of a frail older adult’s physiology and the breakdown of a complex dynamic system that previously protected homeostasis and integrated disparate physiologic and functional activities (5, 6). Although each approach may differ in defining which older adults are frail, both identify older adults who are vulnerable to stressors due to a loss of resilience and physiologic integration and can therefore

Table 1. Leading Theories of Frailty

Theory	Characteristics	Criteria
Physical phenotype of frailty (9)	Derived from a retrospective study Identified via 5 interrelated aspects of physical health: • Slow walking speed • Weakness (on grip strength) • Unintentional weight loss • Self-reported exhaustion • Low physical activity	Number of characteristics present: 0 = Robust 1–2 = Prefrail 3–5 = Frail
Cumulative deficit frailty (10, 16)	Derived from a prospective study Engineering definition of frailty that considers the human body as a complex system Based on the Comprehensive Geriatric Assessment Assessment of multiple domains of health to capture deficits related to aging that are not too rare or common in the population Often includes evaluation of: • Cognition • Physical function • Mental health • Morbidities and medications • Nutrition • Sensory function • Social supports • Geriatric syndromes	Percentage of deficits present relative to those assessed (typically ≥ 30 items; cut points may vary): <10% = Robust 10%–20% = Prefrail >20% = Frail Severe frailty can be considered in those with >40%–50% of deficits present

benefit from a distinct approach to care (11, 12, 19).

Frailty can also be considered as primary or secondary. Primary frailty is driven by aging physiology itself, whereas secondary frailty is driven by a specific underlying condition (20, 21). In secondary frailty, if the underlying condition is optimally treated, frailty may be reversed.

The pathophysiology of frailty is an emerging science, but it is related to accelerated aging and often emerges from dysregulation across many key physiologic systems (6). Clinical identification of frailty may only occur once a threshold is reached and the body can cope no further. As a result, frailty may often only manifest clinically in the setting of a stressor, from a seemingly benign medication adjustment, fall, or infection that can result in devastating consequences out of proportion to what may have been expected.

What is the importance of identifying patients with frailty?

Compared with nonfrail older adults, those with frailty experience increased

risk for falls (estimated at 1.8 to 3 times the risk) (22) and fractures (estimated at 1.25 to 1.4 times the risk) (23), disability and/or loss of independence in activities of daily living (estimated at 2.7 to 5.6 times the risk) (24), dementia (estimated at 1.7 to 2 times the risk) (25), hospitalizations (estimated at 3 to 8 times the risk) (26), and mortality (20% to 40% increased risk with each 0.1-point increase in frailty index) (26–28).

In the hospital, frailty is associated with longer length of stay and delirium. Identification of frailty in the hospital setting allows teams to take preventive actions to reduce the risk for delirium, falls, and adverse effects from outsized responses to medications. Those with frailty may also be less likely to mount typical warning signs of bleeding, infection, or sepsis, such as elevated heart rate, hypotension, fever, and elevated leukocyte count.

Among those with frailty, surgery, hospitalization, and interventions such as radiation or chemotherapy are other stressors that carry a particularly increased risk for discharge to a skilled-nursing

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facility and a decrease in functional independence. Consequently, planning for geriatric comanagement (where available) and early involvement of case management to consider postacute care are prudent. Patients with cancer and frailty often experience greater risk for toxicity from chemotherapy. Additional support and involvement of a geriatrician and/or a palliative care specialist may improve frail older patients’ ability to tolerate treatment.

Frailty is also an important consideration in patients initiating a new medication and may warrant close monitoring as adverse drug events, such as falls, kidney injury, electrolyte derangement, and hospitalizations, are more common among those with frailty (29).

Several specialty organizations have adopted guidelines for people with frailty, such as the American Diabetes Association recommendations for higher hemoglobin A_{1c} targets (for example, <8.5% in those with frailty) (30). However, clinicians are cautioned that frailty alone is not a reason to withhold care; rather, identifying frailty can facilitate individualization of care plans.

In the PARAGON-HF trial, 4796 patients with heart failure with preserved ejection fraction were randomly assigned to sacubitril-valsartan versus valsartan. Those who had frailty at baseline and were assigned to the intervention had a greater reduction in hospitalizations and cardiovascular death than those without frailty (31).

Recognition of frailty may inform a person and their family about timelines for engaging supportive care in the home or having difficult conversations about where a person with frailty prefers to live if they require additional day-to-day support for activities of daily living and how soon that need may arise.

Who is at risk for frailty?

Frailty is more likely in older adults with a specific background history, context, or conditions (Table 2). For example, frailty is more prevalent in women, racial

Table 2. Risk Factors Associated With Frailty

Type	Examples
Social and demographic	Older age Female sex Marginalized race or ethnicity Lower socioeconomic status Lower educational attainment
Clinical/medical	Overweight/obesity or underweight Chronic diseases (e.g., diabetes, cardiovascular disease) Multimorbidity Polypharmacy Falls Dependence in activities of daily living
Psychological	Depression Loneliness Poor self-rated health
Health behaviors	Smoking Inactivity Poor diet or malnutrition
Biological	Inflammation (e.g., C-reactive protein) Metabolic or endocrine (e.g., androgen deficiency, insulin-like growth factor 1) Low vitamin D level

and ethnic minority groups, those with lower educational attainment, and those with lower individual and neighborhood socioeconomic status. Additional factors that have been associated with the development of frailty include underweight or obesity, smoking history, multimorbidity, inactivity, depression, impaired cognition, change in functional status, falls, inflammatory conditions such as rheumatoid arthritis or inflammatory bowel disease, and metabolic impairment (6, 11). For many of these risk factors, there is a bidirectional relationship; for example, cardiovascular disease can increase risk for frailty, while frailty itself increases risk for cardiovascular disease (32).

Furthermore, patients who frequently access emergency department or hospital care or have increased needs for support at home may have undiagnosed frailty. For example, a patient in the emergency department with recurrent falls should be screened for frailty as aspects of their frailty may be driving their instability (33), increased care needs, or recurrent use of acute care.

Similarly, when a patient does not recover as expected from a minor illness or has an adverse reaction that is greater than would be expected for their age or comorbidities, the clinician should consider frailty as a potential underlying contributor and screen the patient for frailty to inform the care plan.

How can frailty be prevented?

The prefrail state identifies people at high risk for developing frailty and in whom frailty may be particularly reversible. Several multifactorial interventions have been proposed to prevent and/or reverse frailty, with most targeting lifestyle behaviors and cardiovascular and metabolic disease states (5, 6, 11).

Although some risk factors are not modifiable (Table 2), the best evidence for primary prevention includes maintaining an active lifestyle, with particular focus on balance, resistance, and regular movement with avoidance of sedentary behavior, as well as maintaining a healthy diet, with avoidance of smoking and excess alcohol intake (3, 4, 11). There is evidence for the Mediterranean diet specifically for frailty prevention (34), although other

data suggest that adherence to any healthy diet is beneficial for frailty prevention (35), with the key being sufficient protein intake. Avoidance of sedentary behavior, obesity, and concomitant sarcopenia may help prevent the cardiovascular and metabolic derangements associated with frailty.

In a prospective cohort of 1815 community-dwelling adults aged 60 years or older living in Spain, greater adherence to the Mediterranean diet was associated with lower risk for incident frailty (P for trend = 0.002) and lower risk for slow walking speed over a mean follow-up of 3.5 years (36).

In addition, as noted, identification and treatment of specific diseases, such as inflammatory disease, cardiovascular disease, or some cancer states, may prevent or delay frailty onset (37).

In a cohort of 258 patients with heart failure and frailty, 118 received treatment with mitral valve repair and 140 did not. Those who underwent the repair experienced a nearly 50% improvement in physical frailty at 12 months compared with only 12% in those who did not (38).

Frailty in Adults... Frailty is the dysregulation and breakdown of a complex dynamic system that protects physiologic homeostasis. It can be characterized by a physical phenotype of deficits across 5 characteristics or by assessment of cumulative deficits across multiple domains of health. Determining frailty status is important because it predicts subsequent adverse outcomes, including recurrent acute health care utilization, loss of independence, and death. Persons at risk for frailty may have medical comorbidities, mood and cognitive challenges, and social determinants of health needs. Health maintenance through exercise and a healthy, protein-rich diet along with control of chronic disease and periodic medication review can reduce risk factors for and development of frailty.

CLINICAL BOTTOM LINE

What signs and symptoms should a clinician look for on a history or physical examination?

Patients may present with overt signs and symptoms of frailty, such as weight loss, weakness, and slow walking.

Identification and Assessment

Clinicians should consider frailty when there is a change in functional status, such as a slowing in walking pace, a decrease in mobility, a need for additional supports for activities of daily living, falls, or delirium.

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Table 3. Examples of Validated Tools for Measurement of Frailty in Clinical Settings*

<i>Timing</i>	<i>Assessment Type</i>	<i>Examples</i>	<i>Typical Setting</i>
Brief (<5 min)	History, self-report	FRAIL scale	Inpatient or outpatient
Brief (<5 min)	Physical	4-meter gait speed Timed Up and Go test	Outpatient
10-15 min	History	Clinical Frailty Scale Vulnerable Elders Survey-13	Any setting
10-15 min	History	Rapid Geriatric Assessment	Outpatient
10-15 min	History and physical	Edmonton Frail Scale	Any setting
60-≥90 min	History and physical	Comprehensive Geriatric Assessment - Frailty Index	Outpatient
Brief (<5 min)	History	Risk Analysis Index	Surgery
Brief (<5 min)	History	Myeloma Frailty Score	Before chemotherapy
10-15 min	History and physical	Essential Frailty Toolset	Before aortic valve replacement
NA	Automated (from electronic health record data)	Mass General Brigham Electronic Frailty Index Veterans Affairs Frailty Index Wake Forest Electronic Frailty Index	Any setting; best for population screening

NA = not applicable.

* Online calculators for selected frailty assessment tools are available at eFrailty.org (39).

In others, presentation of frailty may be more subtle. Persons with frailty may not recover as expected after a relatively minor intervention or may experience a greater decrease in function than would be expected after a mild illness (4). Furthermore, patients who frequently access emergency department or hospital care would benefit from a frailty assessment. Clinicians should be particularly alert when new medications or other stressors cause morbidity beyond what might be expected.

How should physicians identify and assess frailty?

There are multiple validated tools to measure frailty. **Table 3** summarizes some commonly used tools for different clinical settings. Online calculators can be found at eFrailty.org (39).

For clinicians with limited time, a brief screening tool that patients complete in a waiting room or before their visit can be used, such as the FRAIL scale (see the **Box: Brief Frailty Screening Tool: FRAIL Scale**) or the Clinical Frailty Scale (**Figure 1**) (40). The FRAIL scale mirrors phenotypic frailty and also evaluates multimorbidity but is based on self-report of 5 items (fatigue, resistance, ambulation, illness, and loss of

weight), with a score of 0 indicating no frailty, 1 to 2 indicating prefrailty, and 3 or higher indicating frailty. The Clinical Frailty Scale is derived from a few brief questions on how a patient has been managing over the previous 2 weeks and considers both functional status and management of chronic conditions. Scores range from 1 to 9, with increasing values representing increasing frailty (1 to 3 indicates no frailty, 4 to 6 indicates mild to moderate frailty, 7 to 8 indicates severe frailty, and 9 indicates terminal illness with or without frailty).

Single-marker tools for frailty, such as gait speed or the Timed Up and Go test, can be useful when time is limited but space is available for a physical function assessment, such as in a hallway (**Figure 2**) (41). When more time is available, a multicomponent assessment such as the Vulnerable Elders Survey-13 (3 to 5 minutes), the Rapid Geriatric Assessment (10 to 15 minutes), or a CGA (≥30 minutes) can be used (40). eFrailty.org is a useful resource for clinicians seeking guidance on selecting the most appropriate frailty tool for their clinical environment and situation (39), such as preprocedural assessment or quick screening assessment, and a crosswalk

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Brief Frailty Screening Tool: FRAIL Scale

A clinician asks the patient to self-report 5 items:

Fatigue: Feeling fatigued/tired = 1

Resistance: Unable to walk up a flight of stairs = 1

Aerobic: Unable to walk a block = 1

Illnesses: ≥ 5 chronic conditions = 1

Loss of weight: Unintentionally lost $\geq 5\%$ of weight in the past year = 1

Scoring:

Nonfrail = 0 items

Prefrail = 1 to 2 items

Frail = ≥ 3 items

is available to compare results from frequently used frailty tools (19). Automated frailty indices, such as those used in U.K. primary care clinics, the U.S. Veterans Affairs health system, and the Wake Forest health system, leverage patient electronic health record information and can be useful for screening in clinics and health systems to rapidly identify patients with frailty (42, 43).

The gold standard for frailty assessment is to conduct a CGA (44). This is typically performed by a geriatrician in collaboration with a multidisciplinary team and often takes at least 60 to 90 minutes.

What is the role of screening for frailty in the outpatient setting?

Although screening for frailty is recommended by the International Conference of Frailty and Sarcopenia Research consensus guidelines (40), routine screening in primary care is not standard in the United States (45).

Some of the best evidence for frailty screening comes from oncology and surgery, with both specialties recommending routine comprehensive frailty screening before planned interventions (46). The American College of Surgeons (47) recommends routine frailty screening for all adults aged 65 years or older to ensure that risk is appropriately mitigated and any planned intervention aligns with goals of care. For a person with frailty, even a “minor procedure”

should be considered a potential stressor that can lead to adverse outcomes (48). Guidelines recommend screening for frailty even for less invasive procedures as frailty assessments have been shown to improve prediction of postoperative complications, length of stay, nonhome discharge, and mortality (49).

In a prospective cohort study of 246 patients after a transcatheter or surgical aortic valve replacement, baseline frailty status identified those either maintaining or improving functional status versus those at risk for worsening function after either procedure (50).

Preoperative assessment of frailty has now become a routine part of the “surgical pause” (51) and was adopted by the Veterans Health Administration in 2024. The surgical pause allows surgical teams to rapidly identify older adults with preoperative frailty using the Risk Analysis Index. This strategy has been associated with a nearly 3-fold survival advantage in older adults with frailty compared with those who did not undergo a preoperative frailty assessment or “pause.”

Identifying frailty may help clinicians tailor interventions, such as the amount or type of chemotherapy in a patient with cancer, to the patient’s frailty status.

In a randomized trial of 514 patients with gastrointestinal cancer and frailty and a median age of 76 years, a less intense chemotherapy regimen was found to be noninferior to usual intensity, with improvement in patient-reported outcomes and no significant change in survival (52).

What is the role of screening patients for frailty in the hospital?

As part of the Age-Friendly Hospital Measure, the Centers for Medicare & Medicaid Services (CMS) endorses frailty screening in the hospital. However, accurate frailty assessment is critical, as a physician’s intuitive judgment by a cursory “eyeball” or “foot of the bed” test

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Figure 1. Brief frailty screening tool: Clinical Frailty Scale.

The clinician asks the patient or caregiver about the patient's functional status over the past two weeks (e.g., prior to a hospital admission) using the following scale:

CLINICAL FRAILITY SCALE					
	1	VERY FIT People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.		6	LIVING WITH MODERATE FRAILITY People who need help with all outside activities and with keeping house . Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.
	2	FIT People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally , e.g., seasonally.		7	LIVING WITH SEVERE FRAILITY Completely dependent for personal care , from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6 months).
	3	MANAGING WELL People whose medical problems are well controlled , even if occasionally symptomatic, but often are not regularly active beyond routine walking.		8	LIVING WITH VERY SEVERE FRAILITY Completely dependent for personal care and approaching end of life. Typically, they could not recover even from a minor illness.
	4	LIVING WITH VERY MILD FRAILITY Previously "vulnerable," this category marks early transition from complete independence. While not dependent on others for daily help, often symptoms limit activities . A common complaint is being "slowed up" and/or being tired during the day.		9	TERMINALLY ILL Approaching the end of life. This category applies to people with a life expectancy <6 months , who are not otherwise living with severe frailty . (Many terminally ill people can still exercise until very close to death.)
	5	LIVING WITH MILD FRAILITY People who often have more evident slowing , and need help with high order instrumental activities of daily living (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation, medications and begins to restrict light housework.			

SCORING FRAILITY IN PEOPLE WITH DEMENTIA

The degree of frailty generally corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

In **very severe dementia** they are often bedfast. Many are virtually mute.

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Clinical Frailty Scale ©2005–2020 Rockwood, Version 2.0 (EN). All rights reserved. For permission: www.geriatricmedicine.ca
Rockwood K et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489–495.

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can often be incorrect in an acutely ill older adult (53).

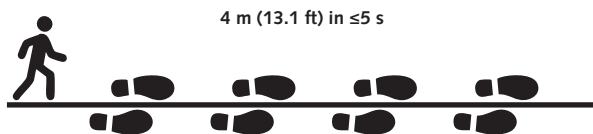
A study of 47 consecutive patients in a cardiac intensive care unit found that a "foot-of-the-bed" assessment conducted by either attending physicians or trainees was inadequate to identify frailty compared with a formal assessment, with patients both underestimated and overestimated as having frailty (54).

Mechanisms for frailty recognition in the hospital setting may be challenging as frailty assessment ideally reflects the physiologic steady state before hospitalization. Physical function assessments and the CGA may inadvertently reflect the degree of acute illness rather than the person's underlying frailty status and can be impractical to conduct in an acute setting. The Clinical Frailty Scale (Figure 1) has proved to be one of the most versatile and useful tools to assess frailty in the hospital, including the emergency department, inpatient wards, and intensive care units. The key to using the Clinical Frailty Scale (55) is that it requires clinicians to ask patients or their caregivers how they were managing in the previous 2 weeks. This point is essential because assessing a hospitalized older adult who is confined to bed due to acute illness may either overestimate or underestimate their degree of frailty.

What is the role of other testing for evaluation of frailty?

Apparent sudden onset of frailty should prompt investigation for a single uniting underlying cause of secondary frailty, particularly in the autoimmune (for

Figure 2. Brief frailty screening tool: 4-meter gait speed.



Clinicians measure how long it takes a patient to walk 4 meters. A cutoff of 5 seconds, or a walking pace <0.8 m/s, is the threshold for frailty.

example, rheumatoid arthritis, polymyalgia rheumatica), cardiovascular (for example, ischemia, heart failure), or cancer (for example, multiple myeloma) domains. Identification of frailty or prefrailty can also direct patients to accurate postacute treatment, such as after a myocardial infarction.

With multiple assessment tools available, clinicians have options when it comes to evaluating frailty (Table 3).

Novel methods are emerging, including the use of remote patient monitoring for gait speed and sedentary behavior, opportunistic application of imaging results to assess sarcopenia in the psoas or “strap” muscles, and echocardiographic indices. Current research is also assessing the value of biomarkers for determining frailty. However, these approaches have not yet been incorporated into routine clinical practice.

Identification and Assessment... Many validated tools are available to screen for and identify frailty. Although the CGA is the gold standard, briefer tools based on a patient's history, such as the FRAIL scale and the Clinical Frailty Scale, are commonly used in the inpatient and outpatient settings. A brief gait speed assessment can be sufficient to screen for frailty. Identifying a patient's frailty status before a procedure or treatments, such as cancer therapy, can identify opportunities to individualize therapy and may help mitigate poor outcomes and avoid unintentional harms.

CLINICAL BOTTOM LINE

Management

What is the overall approach to managing a person with frailty to reduce harms and improve well-being?

Frailty management (Table 4) should focus on building or rebuilding functional reserve where possible in persons with prefrailty. In those with frailty, goals should include maintaining functional independence and minimizing the risk for harm from comorbid diseases or iatrogenic causes, such as drugs, procedures, or interventions.

The greatest opportunity for frailty reversal is in the early stages. Interventions performed earlier have the potential to reduce risks to independence. Physical activity and nutrition can help mitigate

muscle loss, weight loss, and fatigue, alongside management of comorbidities and regular health maintenance (12).

Emerging evidence suggests that a “less is more” approach may not be best for managing comorbidities associated with frailty. For example, patients with heart failure and frailty will have as much or more benefit with heart failure-specific medications (31, 56) compared with those without frailty. Control of chronic medical conditions, such as hypothyroidism or heart failure, may also slow advancement of frailty. Evidence and subsequent guidance are emerging for when usual care is most appropriate or when a different approach may be needed in patients

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Setting	Mildly Frail	Moderately Frail*	Severely Frail†
All settings	Consider interprofessional team involvement (e.g., social work, physical and occupational therapy)	Consider geriatric medicine consultation	Consider palliative medicine consultation
Outpatient care	Physical activity Nutrition Chronic disease management Prevention and screening	Comprehensive Geriatric Assessment Advance care planning	Home safety Serious illness conversations
Hospital care	Assess baseline mobility, function, and cognition and aim to maintain or improve	Early mobility Delirium prevention Avoid potentially inappropriate medications	Avoid iatrogenesis
Preintervention	Assess baseline mobility, function, and cognition and optimize to the extent possible	Surgical pause Prehabilitation	Confirm values/priorities Plan postacute care

* Includes interventions in the Mildly Frail column.
† Includes interventions in the Mildly Frail and Moderately Frail columns.

with more advanced frailty (for example, loosening diabetes control in moderate to severe frailty to avoid risk for hypoglycemia) (30).

What are recommendations for managing persons with frailty?

Management of persons with frailty has a 2-fold purpose: to slow or reverse progression, and to optimize health outcomes. It includes good nutrition and healthy movement, effective management of chronic diseases, and avoidance of harm during treatments for acute illnesses or emergencies (57).

Physical activity

The combination of diet and exercise with a comprehensive physical activity program has shown some effect on slowing or reversing frailty, particularly with regard to persons with sedentary behavior and/or diabetes (58–60). Reversing frailty can reduce the risk for poor outcomes such as falls, acute care use, and institutionalization. The U.S. Department of Health and Human Services recommends a physical activity regimen that focuses on balance, strength, aerobic activity, and stretching. The Centers for Disease Control and Prevention has a readily available resource, STEADI–Older Adult Fall Prevention (61). For many patients with frailty, this approach may be best if

initiated under the supervision of a physical therapist who can provide a multicomponent approach to physical activity. Similarly, there is good evidence for mind-body interventions such as yoga and tai chi for frailty, mostly targeted to improving gait speed, lower-extremity strength, and balance (62, 63).

The LIFE trial randomly assigned 1635 adults aged 70 to 89 years who had frailty (Short Physical Performance Battery [SPPB] score ≤9) and were sedentary to a long-term structured physical activity program that focused on walking, strength, and balance versus a health education program. After 2.6 years of follow-up, those assigned to the physical activity program had improvements in walking and weight training activities, slower decreases in function over time, and less mobility disability (64).

The PipELINE trial randomly assigned 512 older adults who had frailty (SPPB score of 4 to 9) after an acute myocardial infarction (median age, 80 years) to a program that included exercise, diet counseling, and management of cardiovascular risk factors versus placebo. Those in the intervention group had significantly lower risk for an acute coronary event within 1 month and hospitalization or death within 1 year (65).

Diet and nutrition

Nutritional focus should be on a balanced diet with sufficient protein, typically 1 to 1.2 mg per kilogram of ideal body weight per day, although in patients with advanced chronic kidney disease, a lower threshold may be appropriate. The strongest evidence supports adherence to a Mediterranean diet (66), with general recommendations for a balanced diet that is rich in nutrients with fruits, vegetables, lean proteins, whole grains, and low-fat dairy products for prevention and management of frailty (12). For those with very limited oral intake, supplementation with vitamins and minerals could be considered. However, there is no substantial evidence for protein supplements such as creatine, which can harm the kidneys of older adults. Dietary approaches for reversal of frailty are limited.

Medications

To date, there are no medications to effectively treat frailty in any care setting. Studies have examined different medications such as growth hormone, testosterone, estrogen, vitamin D, omega-3 fatty acids (3, 4), aspirin, and metformin (67, 68). However, there is currently no evidence that pharmacologic interventions affect frailty beyond specific elements such as weight or strength.

A detailed medication review can identify potential iatrogenic harms in persons with frailty. The American Geriatrics Society Beers Criteria identify potentially inappropriate medications (69) that may not behave as predictably in a frailer population due to physiologic changes such as reduced total body water, reduced glomerular filtration rate, or decreased liver function. Sedating medications, such as benzodiazepines and sleep aids, can result in acute confusion and delirium and carry particularly high risk in patients with frailty and dementia. Some anticoagulants, such as warfarin, are more challenging to keep in the

safe therapeutic range. Anticholinergic medications can precipitate delirium, urine retention, and constipation, and antidiabetic agents, such as insulin and sulfonylureas, pose a higher risk for hypoglycemia in patients with frailty, in whom hypoglycemic unawareness is more common due to physiologic changes that blunt adrenergic responses.

Risk mitigation and advance care planning

It is important to avoid stressors that can exacerbate frailty and limit independence, particularly for people with severe frailty. Risks and benefits of new medications, procedures, or surgeries should be carefully considered. Advance care planning should address values and priorities and should include consideration of which supports an older adult may need to age in place or whether a long-term care setting would be the right choice in the context of their familial and financial situation.

Addressing specific limitations

Specific domains contributing to frailty, such as mobility, cognition, or nutrition, may guide management. Referral for physical and/or occupational therapy can help address mobility limitations, a nutritionist and/or a social worker can support nutritional needs in the home, and a geriatrician and/or a neurologist can address cognitive decline. Optimization of sensory input should be reviewed for all 5 senses (hearing, sight, taste, touch, and smell). For example, changes in smell are associated with increased risk for frailty, and olfactory impairment may be a risk factor for frailty (70). Whether improving sensory input reverses frailty remains unknown, although it is prudent to consider optimization of sensory input when possible, such as through hearing and visual aids. When available, home-based primary care or hospital-in-home programs, and potentially virtual programs, may mitigate risks for patients with frailty, although these are active areas of investigation.

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How should physicians advise patients with frailty?

Physicians should advise patients with frailty of the importance of taking steps to address their increased risk for multiple poor outcomes, including falls, cardiovascular events, institutionalization, and reduced life expectancy. Depending on the underlying cause or drivers of frailty, potential for improvement or at least stabilization can be communicated. Identification of frailty can lead to discussions, as appropriate, of home safety, the importance of vaccinations, the need for increased physical activity, dietary review for adequate nutrition, medication review for potentially inappropriate medications or overtreatment, and considerations for aging in place. The domains of the CGA (Table 1) can serve as potential areas for discussion and intervention as relevant to a given patient.

What are treatment considerations for patients with frailty and other comorbidities?

Published guidelines exist for consideration of frailty in the management of patients with diabetes, congestive heart failure, and hypertension, while trials and observational data are available on frailty in atrial fibrillation and emerging data are expected in the management of inflammatory bowel disease, rheumatologic disease, and pulmonary disease, among others (71). For example, the American Diabetes Association recommends tailoring glycemic goals based on cognition, function, frailty, and estimated life expectancy (30). For those with frailty, a hemoglobin A_{1c} target of less than 8.5% is reasonable, with attention to avoiding hypoglycemia by avoiding sulfonylureas and complex insulin regimens.

Evidence is emerging that older adults with frailty and heart failure may benefit from goal-directed medical therapy (GDMT). Improved quality of life and reduced hospitalizations

through the use of GDMT could slow the progression of frailty (72). For example, sodium-glucose cotransporter-2 inhibitors may play a role in healthy aging for some conditions and possibly frailty prevention or reversal, although this remains exploratory (73).

What are treatment considerations for patients with frailty and a planned procedure?

Older adults with frailty with an upcoming intervention should first consider whether the intervention is appropriate (74) in terms of life expectancy, time to benefit, quality of life, and overall goals. Prehabilitation for patients with frailty, typically started 4 to 6 weeks before a planned intervention, may include a physical activity regimen, nutritional support, and cognitive training, and psychological and social supports may be considered during the perioperative period (75, 76), although trials are ongoing to understand the timing and dose for optimal effectiveness (77).

What are special considerations for management of patients with frailty in a hospital or skilled-nursing facility?

Maintaining mobility while hospitalized through physical therapy and avoiding bed rest may prevent further functional decline for frail older adults. Multimodal nonpharmacologic approaches, such as the Hospital Elder Life Program (HELP), include socialization and orientation, cognitive stimulation, early mobilization, vision and hearing support, feeding or fluid assistance as needed, and sleep enhancement. Such approaches reduce delirium risk, length of stay, transfer to skilled-nursing facilities instead of home, and other complications (78, 79).

Hospital discharge is a vulnerable transition point of care that can be even more fraught for an older adult with frailty (80). Discharge plans should be carefully communicated to the patient, their caregivers (if present), and the receiving clinician. Physicians should set

realistic goals for what may be accomplished in a rehabilitation or skilled-nursing facility, such as transferring with less assistance, getting to the commode, and feeding oneself independently. Although perceived as safer than going home, benefits of skilled-nursing care or subacute rehabilitation facilities may be oversold, and many older adults with frailty may not improve to their baseline (81).

As frailty advances and patients cycle between the hospital and rehabilitation, physicians should discuss with patients and caregivers opportunities to improve mobility and decrease risk for falls, whether by optimizing the home environment for mobility or discussing additional supports, including institutionalization, in a way that aligns care with the patient's goals. Clinicians should discuss advance care planning with regard to wishes for life-sustaining treatment, especially given that patients with frailty have poorer outcomes when undergoing CPR. In addition, clinicians can use tools such as the What Matters Most tool and/or

Patient Priorities Care (82, 83) to elicit patients' goals in the face of frailty and use those goals for alignment with the care plan.

What is the role of specialists in managing frailty?

When available for consultation or comanagement, a geriatrician can have a meaningful effect on the quality of life and management plan for older adults with frailty. Interventions for frailty are typically multimodal and multiprofessional. Geriatricians are experts in the physiologic changes of aging and can provide consultation to interpret atypical disease presentations and note when aging changes may mask common symptoms of disease. Perhaps most significant is the expertise of the geriatrician in partnering with an older adult and their caregivers to prognosticate and determine a person-centered course of action that aligns with the patient's values and priorities. Roles of other members of the interprofessional team were discussed earlier.

Management... Nutrition and physical activity are fundamental parts of frailty management, particularly in the early stages, to potentially reverse or prevent progression of frailty and before any planned intervention. Clinicians should discuss patients' goals before any planned interventions to ensure alignment with patient values and preferences. An interprofessional team may include geriatricians, nurses, physical therapists, nutritionists, pharmacists, and others with expertise in the aspects of frailty.

CLINICAL BOTTOM LINE

What resources should health systems consider for patients with frailty?

Some national systems have developed a strategic approach to addressing frailty. The British Geriatrics Society's Fit for Frailty campaign (84) integrates frailty assessment and management programs into primary care settings proactively. The CMS Age-Friendly Hospital Measure, introduced in 2025, includes an emphasis on frailty screening and intervention as well as

Practice Improvement

the 4Ms (What Matters, Medication, Mentation, and Mobility) to improve care for hospitalized older adults (85). The need for hospitals to identify frailty on a population level has led to the proliferation of electronic health record-based frailty indices (43, 86, 87).

Identifying frailty in patients is critical for marshaling resources across settings. In primary care (88), proactive identification of frailty may identify patients who would benefit from a

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geriatrics assessment or a more robust interprofessional team approach (89). In the hospital (90), identifying patients with frailty may allow for earlier engagement of consulting teams such as geriatrics or palliative medicine when appropriate. In the perioperative setting, frailty identification presents an opportunity for focused prehabilitation efforts that may decrease perioperative risk, such as nutrition, physical therapy, and medication optimization. Patients with frailty may particularly benefit from an interprofessional geriatric surgery center (91).

What are the roles of education and quality improvement efforts for frailty?

Education for clinicians on how to identify frailty is essential. The updated medical student competencies in geriatrics identify frailty as a key skill (92), which is also relevant for interprofessional trainees (93). When frailty is

incorporated into quality improvement approaches, clinicians and health systems can more readily identify patients at high risk for these outcomes and other complications and improve patient satisfaction, as shown in a recent study in a U.S. Department of Veterans Affairs skilled-nursing facility (94). Furthermore, quality improvement methods can aid in implementation of frailty screening (40, 95, 96).

In a 112-bed skilled-nursing facility in Massachusetts, implementing an Age-Friendly Health System across the facility resulted in improvement in all 4Ms, with an increase in documentation of goals of care (What Matters) and reductions in falls (Mobility), “disruptive behaviors” (Mentation), and use of potentially inappropriate medications (Medication). In addition, there was a decrease in readmissions and emergency department use within 30 days of admission to the facility (94).

Practice Improvement... Health settings and systems can identify a way to screen for frailty to identify patients who may benefit from more intensive resources to avoid adverse outcomes. National initiatives, such as the CMS Age-Friendly Hospital Measure, increase incentives for health systems to identify and mitigate frailty through interdisciplinary coordination, protocols, education, and quality improvement efforts. Electronic indices offer promise for large health systems to rapidly identify frailty as a necessary step to improve care for older patients.

CLINICAL BOTTOM LINE

In the Clinic Tool Kit

Frailty

Patient Information

<https://frailtyscience.org/patient-caregiver-education>

Patient and caregiver education on aging and frailty from the Johns Hopkins Older Americans Independence Center.

<https://my.clevelandclinic.org/health/diseases/frailty>

Information on frailty from the Cleveland Clinic.

<https://muschealth.org/medical-services/geriatrics-and-aging/healthy-aging/frailty>
Information on frailty from the Medical University of South Carolina.

<https://www.bgs.org.uk/resources/frailty-hub-patient-information>

Frailty resources from the British Geriatrics Society.

<https://www.cuh.nhs.uk/patient-information/frailty-information-for-patients-and-carers>
Information for patients from the Cambridge University Hospitals NHS Foundation Trust.

Information for Health Professionals

<https://www.sciencedirect.com/science/article/pii/S1279770723003950>

International Conference of Frailty and Sarcopenia
Research consensus guidelines on screening for and managing people with frailty in primary care.

<https://www.england.nhs.uk/ourwork/clinical-policy/older-people/frailty/frailty-resources>
Resources for understanding frailty from NHS England.

<https://www.aafp.org/pubs/afp/issues/2021/0215/p219.html>

Information on evaluation and management of frailty from the American Academy of Family Physicians.

<https://www.bgs.org.uk/resources/frailty-hub-patient-information>
Resources on frailty for health care workers from the British Geriatrics Society.

<https://cpoc.org.uk/guidelines-and-resources/guidelines/perioperative-care-people-living-frailty>
Guidelines on perioperative care for people living with frailty from the Centre for Perioperative Care and the British Geriatrics Society.

<https://frailtyscience.org/patient-caregiver-education>
Professional resources from the Johns Hopkins Older Americans Independence Center.

eFrailty.org

Frailty tools for health professionals from a collaboration of experts supported by the Marcus Institute for Aging Research at Hebrew SeniorLife.

In the Clinic

WHAT YOU SHOULD KNOW ABOUT FRAILITY

In the Clinic
Annals of Internal Medicine

What Is Frailty?

Frailty is a state of vulnerability resulting from imbalances in the human body systems that puts patients at higher risk when facing stressors. Frailty is more common among older adults, although most older adults are not frail.

Why Is Identifying Frailty Important?

Persons with frailty are at greater risk when facing stressors such as falls, hospitalizations, or procedures. They may be more likely to experience complications or worse outcomes, including death. Identifying persons who are frail enables appropriate planning and decisions for disease management and other procedures. It also allows persons with frailty to discuss with their family members and care teams their goals of care and any supports needed for activities of daily living. Identifying prefrailty may allow lifestyle intervention or disease management that may reverse or improve frailty symptoms.

How Is Frailty Diagnosed?

There are many tools for assessing frailty, including surveys or using information from a person's medical history to identify where they fall on the spectrum from fit to prefrail or frail. Such tools may include assessment of:

- Weakness, such as grip strength
- Slow walking speed
- Exhaustion
- Low physical activity
- Unintentional weight loss (≥ 10 lb in the previous year)

A detailed frailty assessment can include a Comprehensive Geriatric Assessment, which takes 60 to 90 minutes and is usually performed by a geriatric specialist.

What Are the Goals of Treating Frailty?

The goals of treating frailty are to avoid or minimize harms from stressors such as procedures, drugs, or interventions. Treatments can also slow or reverse progression of frailty.



How Is Frailty or Prefrailty Treated?

- Physical activity and a healthy diet can help maintain a healthy weight, reduce fatigue, and improve muscle and bone strength.
- Management of chronic diseases and regular health maintenance can help reduce risk for harms from complications or the need for other procedures or interventions and may slow the progression of frailty.
- Appropriate planning can include avoiding or minimizing stressors, with particular attention to new medications, procedures, or surgery, and also planning supports for aging in place or the need for assistance.
- Limitations in movement, thinking, or other senses (such as hearing or sight) should be assessed and treated.

Questions for My Doctor

- What is my risk for frailty?
- What can I do to prevent or slow the progression of frailty?
- What resources are available for advance care planning?
- What might affect my ability to live independently?

For More Information



Kaiser Permanente

<https://healthy.kaiserpermanente.org/health-wellness/health-encyclopedia/he.frailty-in-older-adults.abo3671>

British Geriatrics Society

<https://www.bgs.org.uk/resources/frailty-hub-patient-information>